

Advanced Amphibious Assault Vehicle (AAAV)

DMSO Conference

6/2/99

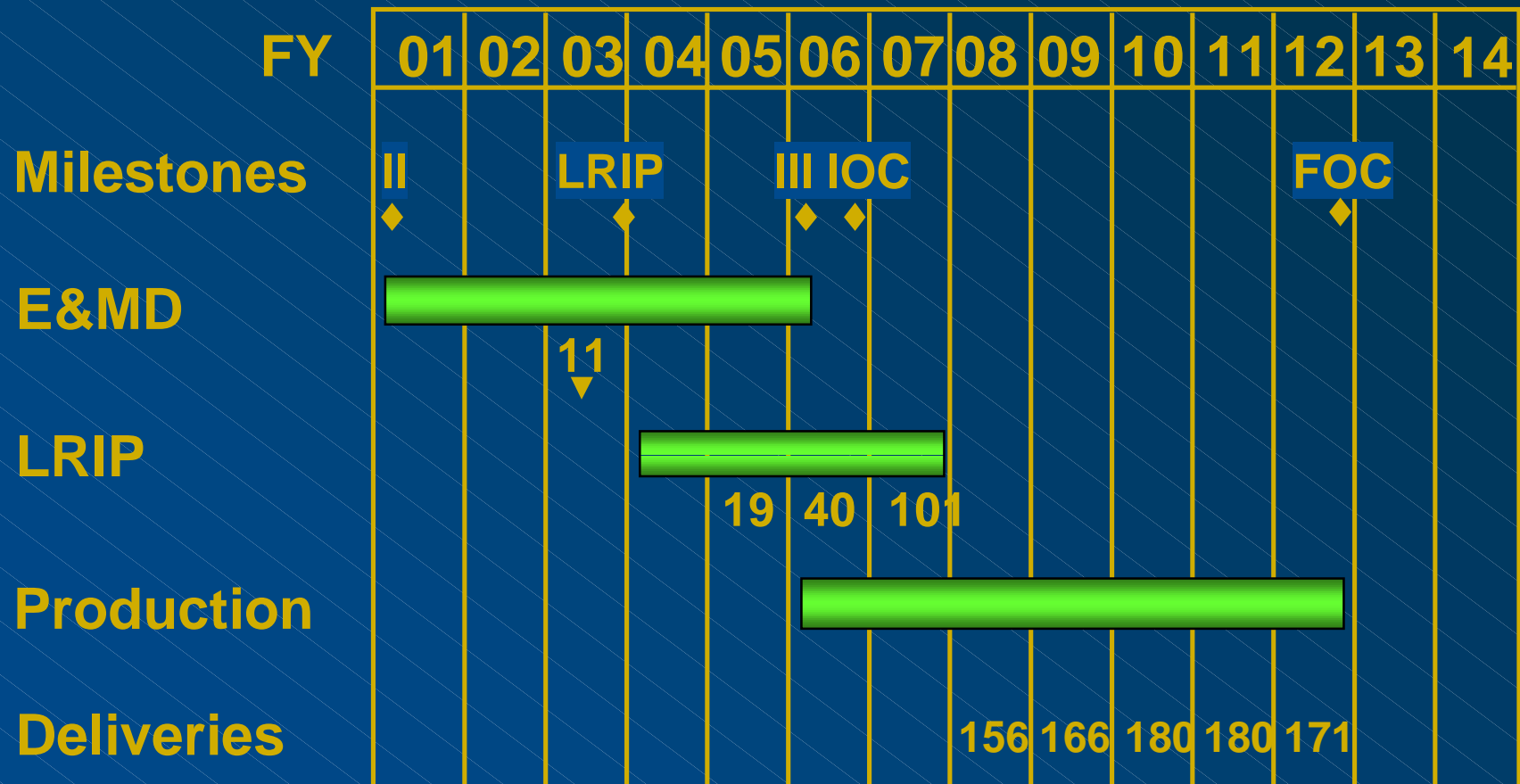
Panel Discussion



Mark Routson/AAAV M&S IPT Lead

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AAAV / USMC PROGRAM SCHEDULE



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VIRTUAL INTEGRATION & ASSEMBLY

- SEEKS TO INTEGRATE LIFECYCLE DOCUMENTATION PROCESSES
 - Prototype Assembly Mfg Build, Tech Manuals
- PROVIDES COMMON WEB INTERFACE TO WIDE VARIETY OF DATA SOURCES
 - Useable By Mechanics, Mfg, and Logistics
- ENSURES EFFICIENT DEPLOYMENT OF MULTIPLE DOCUMENTATION SOURCES
 - Removes Reliance On Drawings
 - Simplifies Configuration Management

INTEGRATED PDRR/EMD/IETM PROCESS DEVELOPMENT

Standard Method - Independent Management

Assembly Drawings



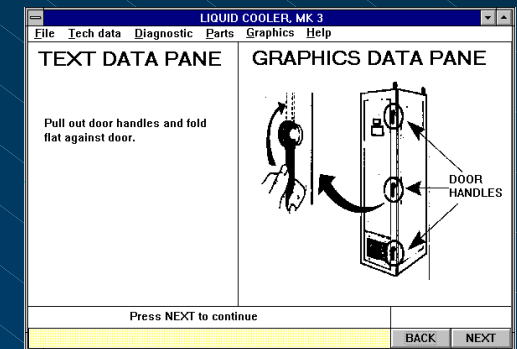
Interface (New Drawings, ...)

Process Sheets



Interface (New Drawings, ...)

Interactive Electronic Technical Manual



Prototype

Manufacturing

Fielding

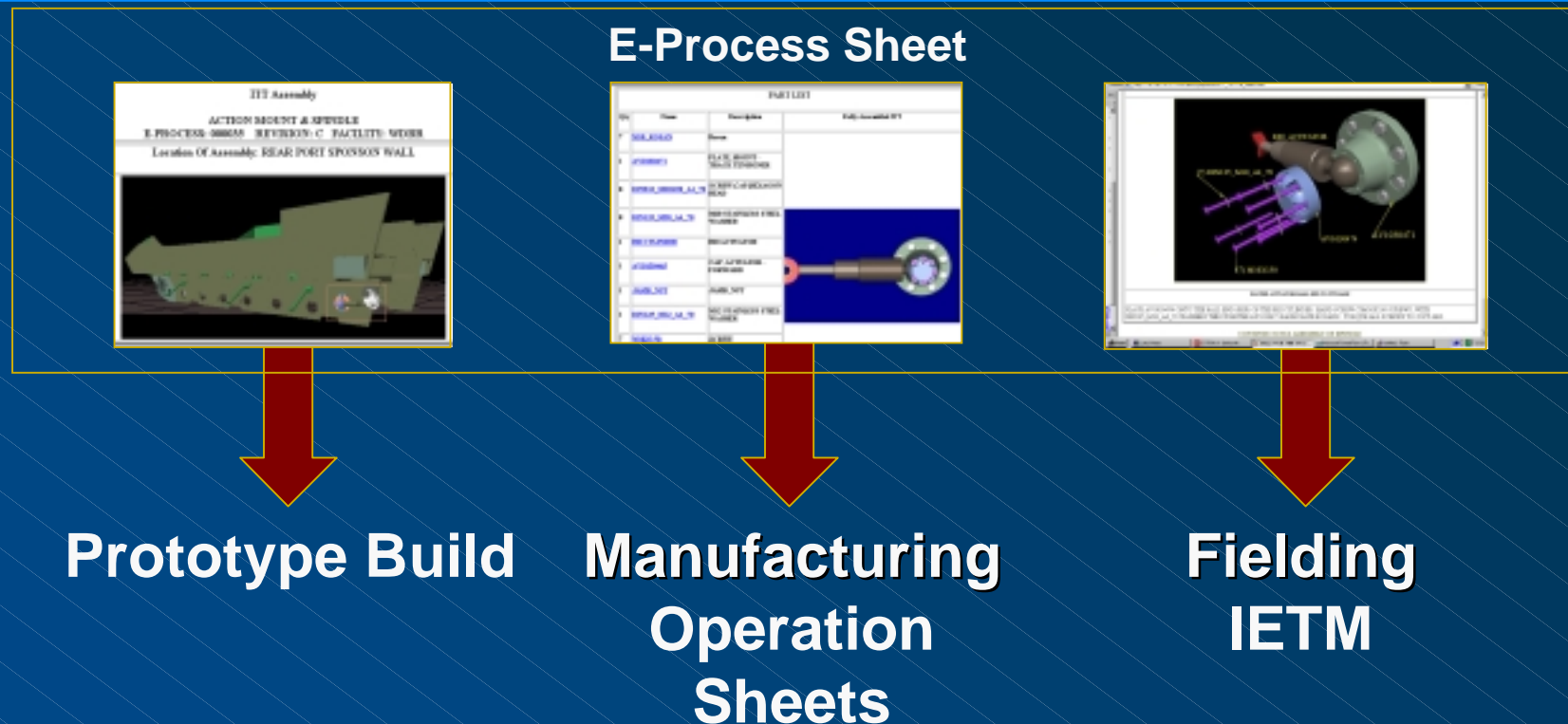
Standard "Stove Pipe" Approach To Development
Generates Similar Redundant Documents To Support
Weapon Station Life Cycle. Redundant CM, Development,
And Inconsistent Data Often Results From This Approach.

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INTEGRATED DEVELOPMENT / MFG / LOGISTIC SUPPORT PROCESS DEVELOPMENT

Integrated Process Development

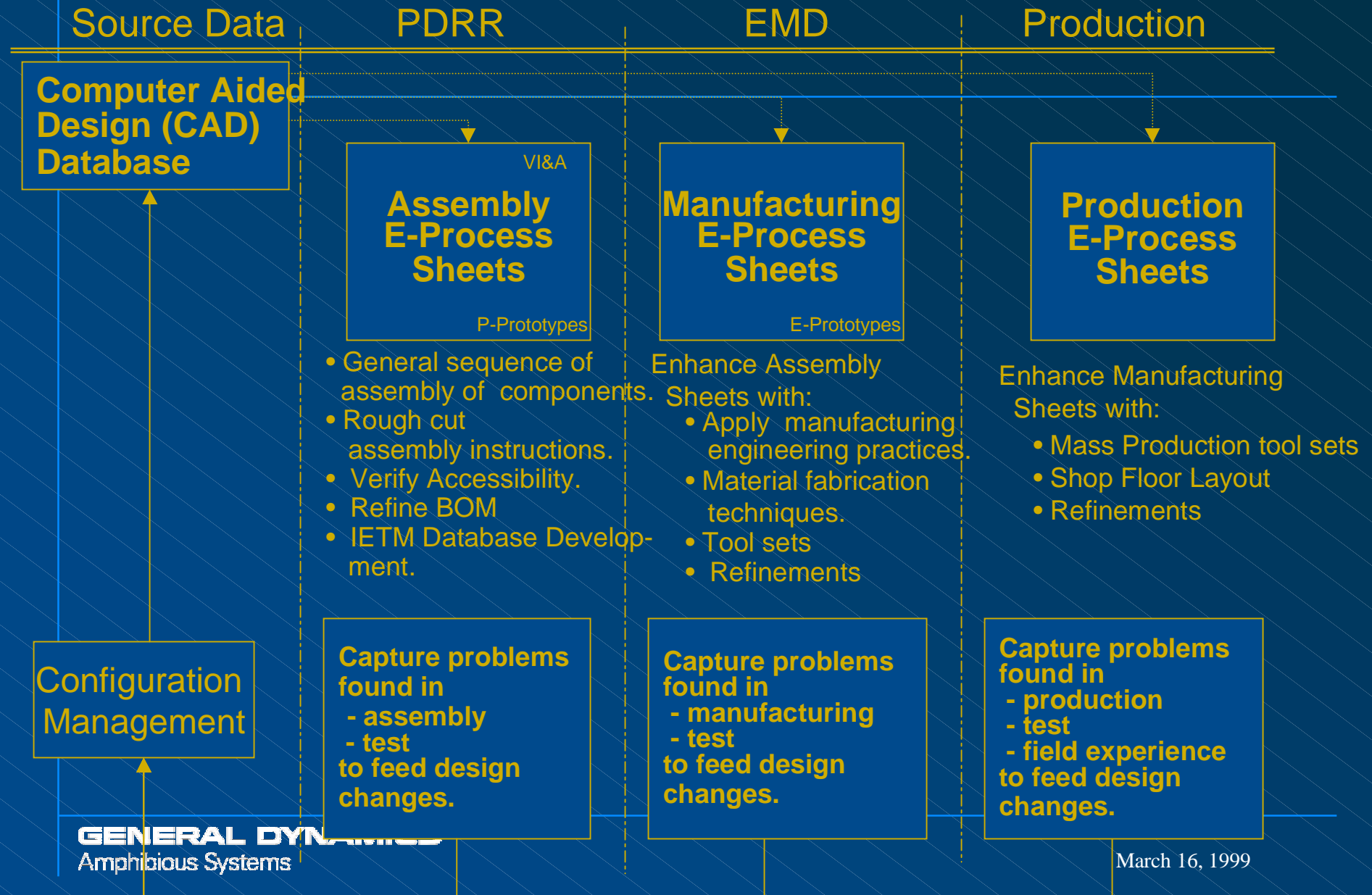


Integrated Approach Reduces Redundant Documentation Efforts. This simplifies CM, Development, and greatly increases data consistency (e.g. improves quality) at a reduction of cost.

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VI&A Tie-in to Production



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VIRTUAL INTEGRATION & ASSEMBLY

Hardware



AAAV Build



LATP Fab



AAAV Test

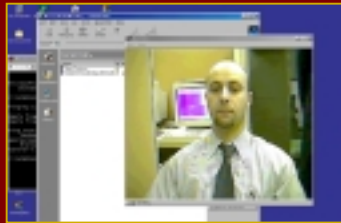


AAAV DRPM

World Wide Web (Hyper-Link, Embedded Functions, Security)

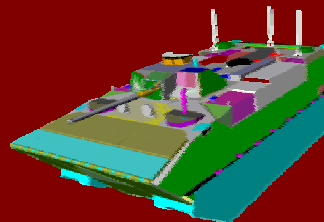
Application(s)

Virtual Collocation

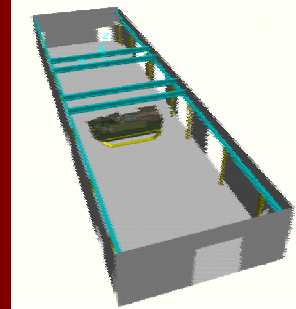


VTC, Whiteboard, App Sharing

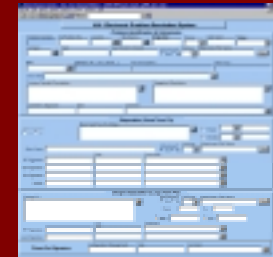
Assembly Data/Notes



Simulation



Problem Reporting



Data Sources



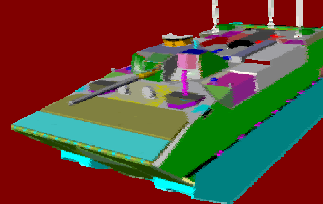
Procure



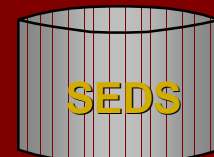
Inventory



Models



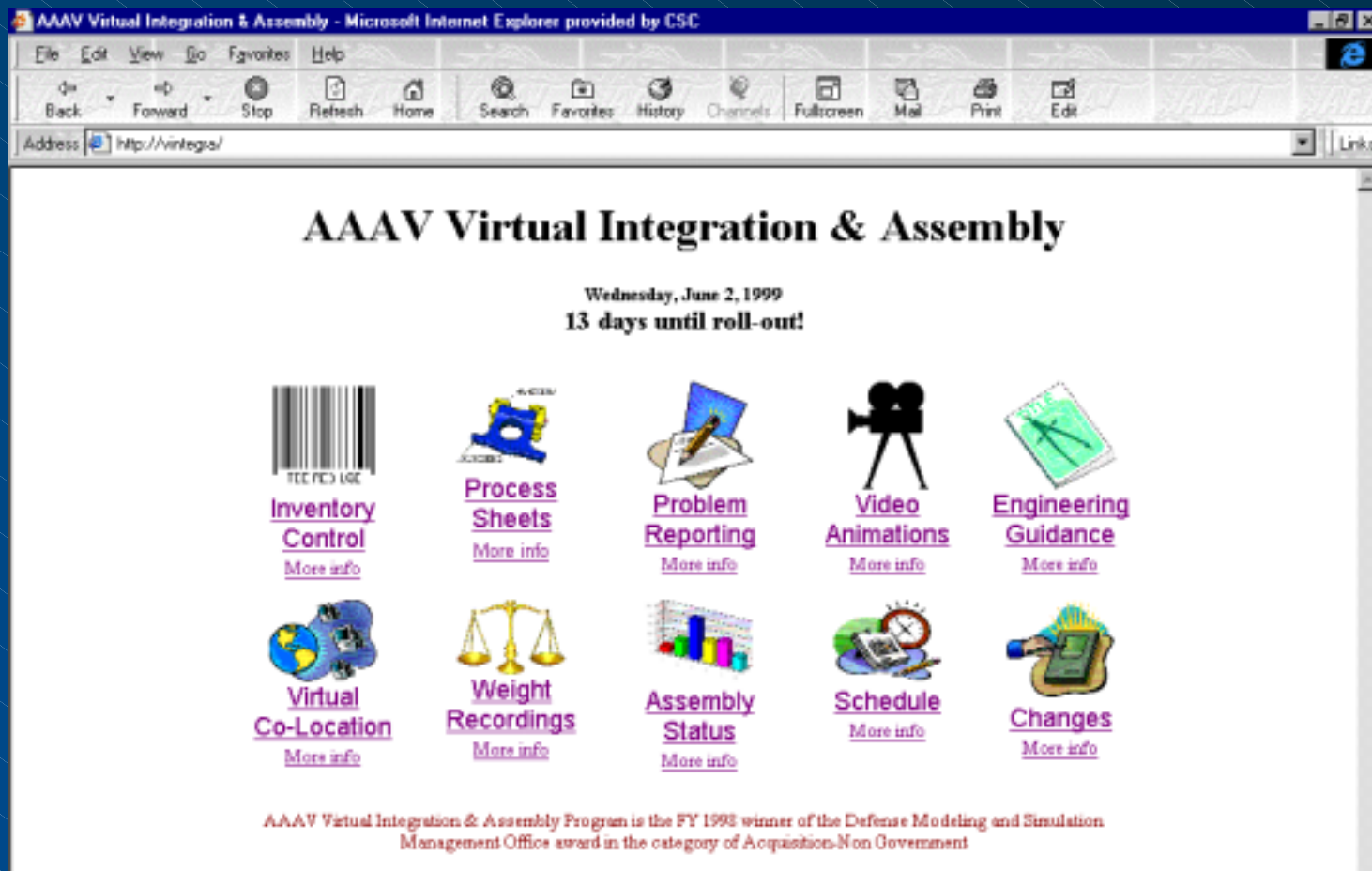
CM



SEDS



Virtual Integration & Assembly Integrated Manufacturing Knowledge Base



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Integrated Inventory Control

Mapping Manufacturing Tasks To BOM

Engine

I&A TASK

IPT	Task Code	Task Description	Early Start
Engine	I&A02	P-1 Install Primary Engine	04/26/1999
Engine	I&A06	P-1 Install APU	04/26/1999
Engine	I&A201	P-1 Rework Hull Structure	
Engine	I&A37	P-1 Install Fuel System	
Engine	I&A37A	P-1 Install Fuel System Exter	
Engine	I&A40	P-1 Install Engine Cooling Sy	
Engine	I&A41	P-1 Install Air Induction Syste	
Engine	I&A42	P-1 Install Exhaust Systems	

Engine : I&A02 : P-1 Install Primary Engine Vehicle: P1

Line #	Part# Part	Alias Part	Description	Part Qty	Inv Qty	Process ID	Comment
1	av040802.asm		ENGINE	1		PS0405	In stock
2	av040812.prt		MOUNT	1	3	PS0408	In stock
3	av040811.prt		STAND	1		PS0408	gross date 777
4	av040812.prt		PLATE	2		PS0408	In stock
5	av040813.prt		SWITCH, PRESSURE	1		PS0405	gross date 6/15
6	av040814.prt		SWITCH, PRESSURE	2		PS0405	gross date 6/15
7	av040805a.prt		COVER	1		PS0405	to be released 6/3
8	av040805.prt		SETScrew, SOCKET	8		PS0408	In stock
9	av040810.prt		MOUNT	1	3	PS0408	In stock
10	av040800.asm		VALVE, CHECK	2		PS0405	gross date 6/1
11	ole031_m08x08_al_01.prt		SCREW, CAP, SOCKET, CONICAL HEAD	8		PS0408	In stock
12	ole031_m08x08_al_03.prt		SCREW, CAP, HEXAGON HEAD	4			In stock
13	ole031_m12_al_03.prt		NUT, FLANK, HEXAGON	12		PS0408	In stock
14	ole031_m12_al_03.prt		NUT, FLANK, HEXAGON	3		PS0405	In stock
15	av040813.prt	AV040813.PRT	ENG SLIDE RACK	1		PS0405	In stock
16		AV040813.prt	Engin Engine Mount	8		PS0405	In stock
17		AV040802.prt	Support Rack	8		PS0405	In stock
18		040812 MOUNTING AS-		8	14	PS0405	In stock

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Problem Reporting

Capturing Problem Knowledge In Real-Time At The Point Of Occurrence

PROBLEM REPORTS - Microsoft Internet Explorer provided by CSC

Electronic Problem Resolution System - OnLine Reports Home page

cm - OnLine Reports. This WWW interface is directly connected with the EPRS problem reporting system. Through this web page, the user can directly access any and all problem report information. Listed directly below are the various states of the problem reports.

Metrics - For Making Your Problem Reporting Close-Out Easier

- Summary Metric - Quick Look At Close-Outs
- ECR Metric - Open ECRs (no assigned ECR #)

Mobility

- Autonomous Drive Train
- Engine
- Hydraulics
- Hydrodynamic Systems & Appendages
- Marine Drive Train
- Suspension

Oil & Vibration Products

Engine Summary

Entry Id	Status	Priority	Submitter	Short Title
2325	OPEN	MEDIUM	millerkm	Missing Appearance
2021	SHORTFIX	HIGH	millerk	Cooling Appearances and floor sup
1112	SHORTFIX	MEDIUM	talbotr	FUEL LEVEL SENSOR NO FIT
1148	OPEN	MEDIUM	moyerd	APU Exhaust Duct Appearance
1252	SHORTFIX	MEDIUM	millerk	Tolerance
1265	SHORTFIX	HIGH	millerk	Assembly interference
1266	SHORTFIX	HIGH	millerk	Modification of engine maver rack bracket
1272	SHORTFIX	HIGH	millerk	Engine Bearing plate mounting hole adjustment
1281	SHORTFIX	HIGH	millerk	Addition of liquid shim access hole
1282	SHORTFIX	HIGH	millerk	weld interference with flat washer
1284	OPEN	HIGH	daszkad	Interference between engine and engine maver hinge
1289	OPEN	MEDIUM	humblyj	no fit for engine mount fasteners
1319	SHORTFIX	HIGH	millerk	Add holes for coolant lines
1336	OPEN	MEDIUM	millerk	Fan/Hull mounting interface
1360	OPEN	MEDIUM	daszkad	Installation of thermostat housings

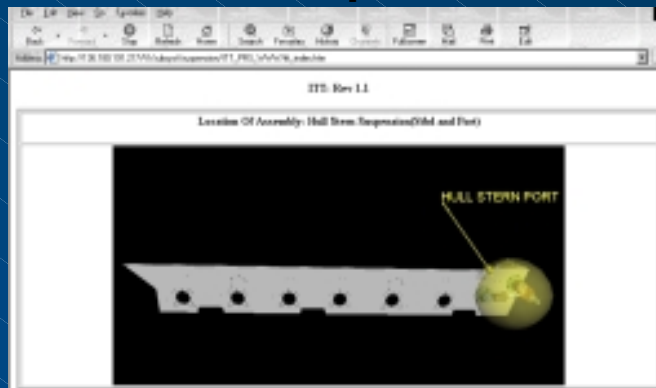
VIA Electronic Problem Resolution System (EPRS) Report Form

PROBLEM IDENTIFICATION							
PROB ID	ALT PROB ID	VEHICLE	DATE	ORIGINATOR	PRIORITY	DATE OPENED	STATUS
1360		411	10/06/1999	daszkad	MEDIUM	10/06/1999 10:47:48	OPEN
CATEGORY	TYPE	KEYWORDS					
Chap 404	HOLE PLACEMENT	Internal cooling component					
OPT	ITEM (Fuel No. Reg. Shells, etc.)	ITEM DESCRIPTION					
Engine	AVIAD007 ASM	THERMOSTAT HOUSING					
WELD ASSEMBLY (Optional)	AVIAD007 ASM	ATTACHMENT					
PROBLEM DESCRIPTION							
SHORT TITLE							
Installation of thermostat housings							
PROBLEM DESCRIPTION				SUGGESTED SHORT TERM FIX			
10/06/1999 daszkad Rectangular hole for installation of the 4 thermostat housings were located slightly out of position resulting in incorrect alignment between the outlet of the thermostat and the hole in the solution ID: (MOD_DATABASE DEPICTURE DPO008.dwg)				10/06/1999 daszkad Suggestive: Repair procedure for the rectangular opening in the cooling compartment that have been placed in the following location: U: (MOD_DATABASE DEPICTURE DPO008.dwg)			
SUBMITTER	daszkad	DATE	10/06/1999 10:47:47	COMMENTS			
DISPOSITION (of Short Term Fix)							
DISPOSER	SHORT TERM FIX						
	10/06/1999 daszkad Repair procedure for the rectangular opening in the cooling compartment that have been placed in the following location: U: (MOD_DATABASE DEPICTURE DPO008.dwg)						
AFFECTED BY:	DISPOSITION						
SHORT TERM FIX	U: (MOD_DATABASE DEPICTURE DPO008.dwg)						
DISPOSER	DATE	COMMENTS					
MA	DATE	COMMENTS					
GA	DATE	COMMENTS					
VERIFICATION (of Short Term Fix)							
Engine							
Engine							
Engine							
Engine							
Engine							
Engine							
Engine							
Engine							
Engine							

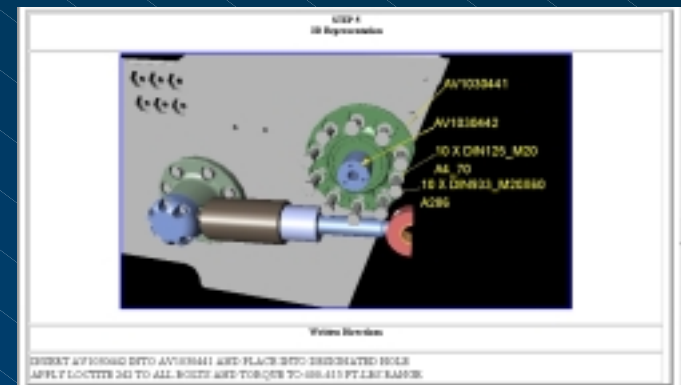
E-Process Sheet

Detailed Assembly/Mfg Knowledge

Location Of Operation



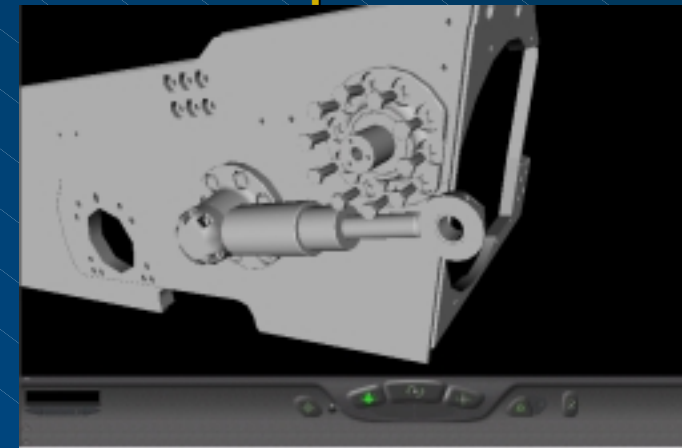
Step By Step Instructions



Assembly BOM

TABLE BOM						
TABLE BOM				TABLE BOM		
Qty	Part No	Rev	Quantity	Unit	DESCRIPTION	Notes
1	AV1039441	1.00	1		WHEEL BASE	
10	DIN125_M20	1.00	10		10 X DIN125 STEEL WORM	
1	DIN933_M20	1.00	1		10 X DIN933 STEEL WORM	
1	AV1039442	1.00	1		WHEEL CAP	
1	AV1039443	1.00	1		WHEEL HINGE, MOUNT, TRUCK	
1	AV1039444	1.00	1		WHEEL HINGE, TRUCK	
1	AV1039445	1.00	1		WHEEL HINGE, TRUCK	
1	DIN125_M20	1.00	1		10 X DIN125 STEEL WORM	
1	DIN933_M20	1.00	1		10 X DIN933 STEEL WORM	
1	AV1039446	1.00	1		WHEEL HINGE, TRUCK	
1	AV1039447	1.00	1		WHEEL HINGE, TRUCK	
1	AV1039448	1.00	1		WHEEL HINGE, TRUCK	
1	AV1039449	1.00	1		WHEEL HINGE, TRUCK	
1	AV1039450	1.00	1		WHEEL HINGE, TRUCK	

VRML Of Step



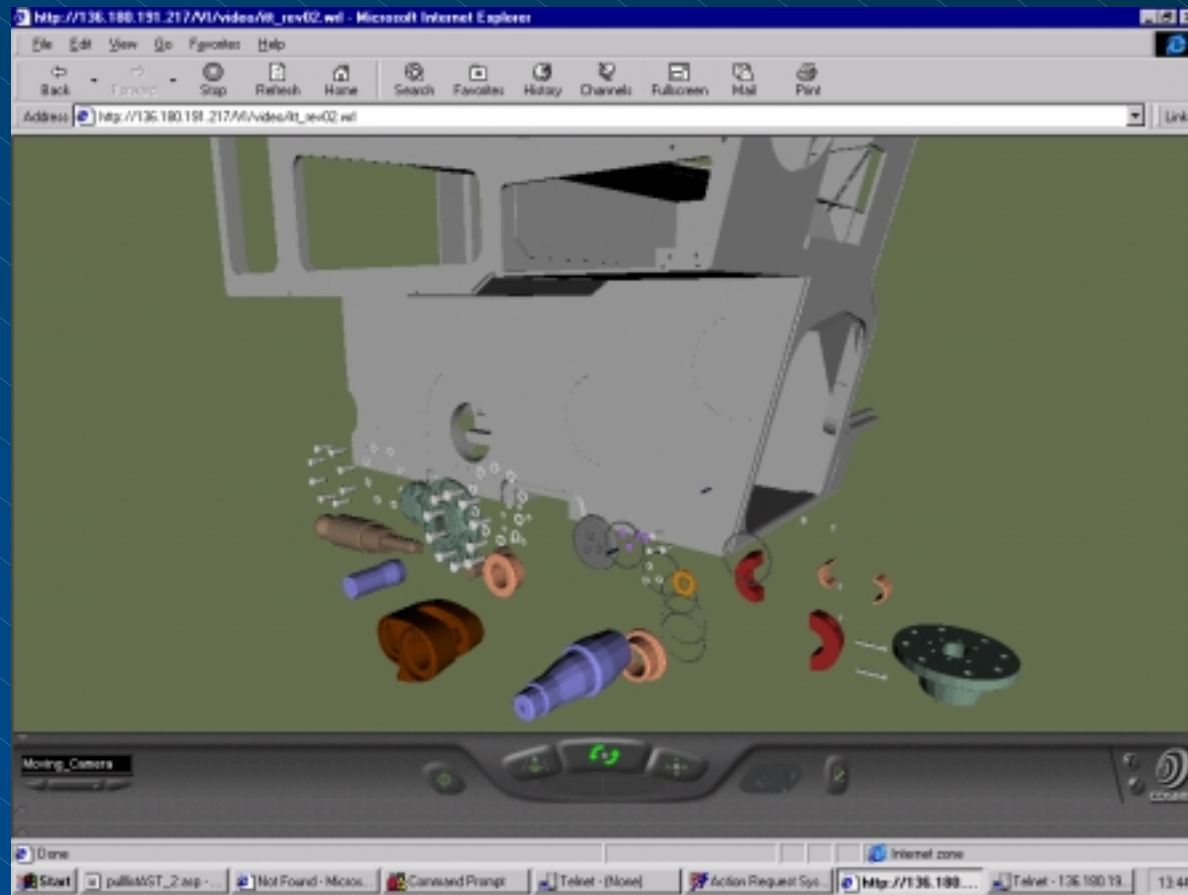
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Produceability Simulation

Assess Assembly/Mfg Before Build

Doubles As Mfg/IETM Training



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